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Health Mobilization Series D-3

Disaster Nursing Preparation

IN A HOSPITAL NURSING SERVICE

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service

This is a report on one phase of a pilot project conducted under the sponsorship of the National League for Nursing to determine how disaster nursing concepts can be taught in a hospital nursing service, in a practical nursing program, and in a basic professional program.

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IN A HOSPITAL NURSING SERVICE

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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NATURE AND PURPOSE OF THE PROJECT

This is a report on the hospital nursing service phase of a study undertaken by the National League for Nursing aimed at improving the preparation of nurses for the functions they are expected to assume during disasters. The study was financed through a contract with the Federal Civil Defense Administration (now the Department of Defense, Office of Civil Defense) and was in effect from January 27, 1958, to September 6, 1961.

Disaster situations present unusual and challenging problems to society and particularly to nursing. The scope of the problem that affects society is clearly stated by Anthony Wallace:

> Situations involving the threat of, or experience of, an interruption of normally effective procedures for reducing tensions, together with a dramatic increase in tensions, to the point of causing death or major personal or social readjustment may be called "extreme situations." Such extreme situations, especially when they involve injury or death, are often called disasters.[1]

This statement helps to focus the problem encountered by nurses in times of disaster. When translated into nursing terms, the problem becomes one of an interruption of planned nursing service in existing institutions, agencies, and homes by a sudden intrusion of great numbers of sick and injured and the use of shelters and other structures for disaster victims. The problem requires that nurses:

(1) Organize under chaotic conditions.

(2) Manage large wards with little or no professional assistance.

(3) Utilize volunteer help, both trained and untrained.

(4) Adapt and develop nursing care procedures to meet the demands of a disaster situation.

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[1] Anthony F. Wallace. *Human Behavior in Extreme Situations*, Disaster Study Number 1, Publication 390, National Academy of Sciences, Washington, D.C., National Research Council, 1956, p. 1.

(5) Adapt and develop public health nursing functions to meet the demands of the situation.

In addition to these demands for nursing which are within the realm of nursing practice, the American Nurses' Association and the American Medical Association are in agreement that in a disaster, if physicians are not available, nurses will assume activities currently within the realm of medical practice, that is, the management of normal deliveries, the management of the psychologically disturbed, and the diagnosis and treatment of minor illnesses and injuries.

The NLN, whose purpose is the improvement of nursing services and nursing education, recognized its obligation to help nursing services and educational programs in nursing to prepare nurses who could meet these demands. This belief led to the appointment of the NLN Committee on Nursing Service and Education in National Defense in 1954. This committee formulated the original plans for the project and participated in its ongoing development.

A. PURPOSE AND GENERAL METHOD

The project was designed to investigate and demonstrate the ways by which students of nursing and personnel in hospital nursing services can be prepared to cope with these five disaster nursing problems and those additional activities that impinge on medical practice.

The major approach to the achievement of this purpose was through studies conducted in a hospital nursing service and in educational programs of various types—practical nursing, diploma, baccalaureate degree, and graduate. In addition, a survey was made of the extent to which preparation for disaster nursing was currently being offered by educational programs in nursing throughout the country. A related activity, recommended by the NLN Committee on Nursing Service and Education in National Defense, was the construction of an achievement test in disaster nursing by the NLN Test Construction Unit.

B. PARTICIPANTS

The demonstration studies were made possible through subcontracts with four institutions that were desirous of developing disaster nursing content for their nursing programs and that had indicated their interest in the NLN project. These four institutions and the programs in which the studies were carried out were:

(1) Massachusetts General Hospital: diploma program and hospital nursing service.

(2) University of Minnesota: practical nursing program and basic baccalaureate degree program.

(3) Skidmore College: basic baccalaureate degree program.

(4) Teachers College, Columbia University: baccalaureate degree program for registered nurses and graduate programs.

Mary V. Neal served as NLN director of the entire project throughout its duration. Catherine M. Sullivan, nurse consultant, OCDM, served as liaison between the OCDM and the NLN. The NLN Committee on Nursing Service and Education in National Defense was the advisory committee to the project.

The activities in each of the participating institutions were guided by one or more project directors. In view of the importance of the project, the Army Nurse Corps lent the services of three nurse officers to serve as project directors for a period of 12 months, in 1958 and 1959, in Massachusetts General Hospital, the University of Minnesota, and Teachers College, Columbia University. From 1959 until the completion of the study, the responsibility for project direction in each of these three institutions was delegated to one or more of its staff members. Skidmore College appointed one of its faculty members to direct its study for the entire duration of the project.

Although it was agreed from the beginning that each participating institution would develop its portion of the study according to its own philosophy, the need for continuing communication about common problems was felt. Accordingly, a Project Conference Group, consisting of the administrators and project directors of the participating programs, the members of the NLN Committee on Nursing Service and Education in National Defense, and the NLN project director, met at intervals throughout the duration of the project to plan its overall development.

C. LENGTH OF THE PROJECT

According to the original plans, the study was to extend over a period of 18 months. By the beginning of 1959, the Project Conference Group concluded that this period would not be adequate for involving the leadership personnel in the programs participating in the study and preparing them for their roles, for exploring and revising curriculum content and organization, and for evaluating results. Accordingly, the NLN Committee on Nursing Service and Education in National Defense recommended to the NLN Board of Directors that additional funds be obtained for extending the study long enough that the plan of instruction devised by each participating program could be implemented and subsequently evaluated. The OCDM made available the additional funds that were needed for this extension.

Teachers College completed its portion of the study in September 1960. The three other institutions continued their studies until September 1961.

D. REPORTS OF FINDINGS

By agreement, the plan by which each program reported progress included identification of the problem, formulation of the objectives, description of the methods and techniques, evaluation of the results, and formulation of conclusions and recommendations. In keeping with the prerogatives of the participating institutions, each one selected its own means of conducting the study.

This booklet presents a summary of the activities undertaken by the Project Conference Group and by the individual participating institutions. It is hoped that it will be of use to nursing services that are endeavoring to prepare their staff members for functioning in a disaster situation. However, all those involved in the study caution against any assumption that the report is a final or an authoritative document. They wish to emphasize their opinion that the experience in any one program cannot and should not be duplicated exactly in any other program. They do believe that their experiences may suggest ideas to, or corroborate the ideas of, others engaged in disaster nursing preparation. It is in keeping with this belief that this report has been prepared.

CONCLUSIONS

1. Nursing functions essential for optimum care that is directed toward the preservation or maintenance of life during a disaster have not been identified.

2. A basic educational program in nursing can include preparation in only the fundamental knowledge and skills essential for effective functioning by nurses in a disaster situation.

3. Disaster nursing is not a clinical specialty.

4. Disaster nursing instruction may be included within the usual nursing courses or may be given as a special course.

5. Clinical laboratory settings for learning experiences in disaster nursing are limited to the setting of the everyday practice of nursing.

6. At the present time, faculty members in schools of nursing have limited preparation for teaching disaster nursing.

7. Courses for teacher preparation in disaster nursing are almost nonexistent.

8. The inservice program is one effective means of preparing nursing instructors in disaster nursing.

9. Not all faculty members have the same interest in the development of disaster nursing content.

10. Students in nursing are inadequately informed about national and world affairs that have direct implications for national security and indirectly for disaster nursing.

11. Faculty study and action concerning disaster nursing results in a strengthening of the total curriculum.

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SETTING THE STAGE FOR THE DEMONSTRATION PROJECTS

A. STATEMENT OF BELIEF

The initial task of the Project Conference Group was to prepare the following tentative statement of belief about nursing in disaster:

> The role of the professional nurse in natural or enemy-caused disaster is to adapt nursing care with respect to lifesaving and health maintenance to situations where the number of people needing care and treatment greatly exceeds the number of prepared people available, and where supplies, equipment, physical facilities, and utilities are limited.

B. ASSUMPTIONS

Twelve general assumptions served as guides for the development of the project.

1. Disaster nursing care includes care of both the injured and the noninjured.

2. In general, priority nursing judgments in disaster nursing are such as to protect the greatest number.

3. The nurse functions within the organizational framework that has been designed for the disaster situation.

4. The collaborative role of the health professions in mass disaster is determined by the individual professions through joint effort.

5. The nursing profession clarifies for its members the role to be assumed by nurses in disaster situations and the nature and extent of

the additional functions for which nurses may be responsible in disasters when numbers of physicians are inadequate.

6. The programs of the nursing organizations assist their members to keep prepared for the role of the nurse in a disaster situation.

7. The individual nurse assumes the responsibility of keeping herself informed and prepared to practice in a disaster situation.

8. The nurse brings to disaster stiuations an essential body of knowledge and skill which enables her to contribute to the health and welfare of the surviving populace.

9. The survival of any nation following an enemy attack is dependent upon planning by its government and preparation of its people to meet the inevitables of destruction.

10. The preparation of nurses to cope with the inevitables of enemy-caused action helps to determine the survival and future of the nation.

11. Institutions of learning that provide educational programs in nursing have a responsibility to prepare nurses to cope with situations created by natural as well as enemy-caused disasters.

12. Organized nursing services have a responsibility to prepare their nursing personnel to cope with situations created by natural as well as enemy-caused disasters.

C. GUIDELINES

Five agreements concerning the development the of study were reached.

First, each participating program committed itself to one purpose: The determination of how to prepare its graduates or staff to perform effectively in times of disaster.

Second, it was agreed that each institution would develop its portion of the study according to its own beliefs concerning curriculum organization and inservice education. In other words, despite the sameness of purpose, there would be a diversity in the planning and implementation of the study in the programs. The fact was recognized and respected that the philosophies of the institutions vary and therefore that the specific educational objectives of practical nursing programs, diploma programs, baccalaureate degree programs, and graduate programs differ tremendously.

The third decision was that preparation for disaster nursing must have a basis in reality. The nurse or nursing student must be helped to experience some feeling of what it is like to function in a disaster. Assumption 2, "In general, priority nursing judgments in disaster nursing are such as to protect the greatest number," is hardly consistent with present-day nursing practice in which the critically ill are usually accorded priority care. Also, in everyday nursing practice, the opportunity to observe nursing as it is practiced in a real situation offers a basis for planning desirable nursing care and for determining content for educational programs. In contrast, the extreme situations created by a disaster, especially those created by an enemy-caused disaster, are virtually unknown to the average faculty member, and she has no laboratory for learning herself or helping her students to learn through direct experience how to deal with such situations. It was recognized, however, that students in nursing are capable of intellectually understanding complexities and problems of patient care before they are able to cope with these complexities in an actual situation. Since this is a problem encountered in everyday teaching, it was anticipated that teaching the student how to cope in a disaster would be a major undertaking.

After a careful examination of this problem, it was agreed that a new philosophy of nursing care that would best meet the needs of the many victims in a disaster must be planned and implemented in the day-to-day teaching and practice of nursing.

The fourth agreement was that materials used or developed by the pilot institutions should be helpful to, or usable by, other educational programs and nursing services: Films and other visual materials would be chosen from among those available on a local or State basis; resource persons utilized in program development would be chosen from among those available on a local or State basis; and State Civil Defense Emergency Hospitals* would be used to demonstrate national and State plans. This universal availability requirement would also be reflected in the development of teaching materials, such as improvised equipment, in the teaching and utilization of nonprofessional personnel and in those activities that impinge upon the present-day practice of medicine but will be delegated to nurses in times of disaster.

The fifth agreement was that the content and methods of instruction can best be developed by specialists in the clinical areas rather than by a specialist in disaster nursing. This decision was in line with the belief that disaster nursing is an integral part of each nursing specialty and that only the clinical specialist has the background knowledge to develop further content in her specialty. This led to another agreement: A student must have a sound understanding of the practice of nursing before disaster nursing care can be taught. The development of this sound understanding demands that greater depth of content be taught in certain areas of practice, such as the management and nursing care of burn victims.

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*Now called Packaged Disaster Hospitals

These agreements—the sameness of purpose, the recognition of each institution's prerogatives, the basis of reality for planning, the development of educational materials that would be useful to others, and the development of disaster nursing content by clinical experts—formed a basis for the development of the project within each of the participating institutions.

D. ESSENTIAL CONTENT AND SUGGESTED METHODS

The Project Conference Group also identified content that should be included in any instructional program that prepares for disaster nursing and in some instances suggested ways of teaching this content. The content decided upon as essential was that relating to:

(1) The circumstances created by disasters. (Problem solving might be included among the teaching methods.)

(2) Improvisation of procedures and equipment. (This might be included as an extension of everyday methods of practice.)

(3) The psychological impact of disasters.

(4) The philosophy of the mass-care plan; namely, that the greatest possible number should receive care and that the less seriously wounded should assist in the care of the more seriously injured.

(5) Federal, State, local, and institutional plans for disaster preparedness.

(6) The responsibilities of citizenship as well as those relating to professional participation in planning for disaster preparedness.

(7) The principles of treatment as defined by the medical profession (since these must serve as a basis for planning nursing care in times of disaster).

(8) Team organization, principles of teaching, and concepts necessary for assuming a leadership role.

Methods suggested for presenting this content were:

(1) The utilization of all opportunities for teaching this content that are presented in everyday experiences.

(2) Provision of vicarious experiences that will prepare the student or nurse to function in the chaotic circumstances of a mass disaster.

(3) Practice in determining nursing priorities for groups of acutely ill patients, especially those who have had surgical intervention.

E. RESPONSIBILITIES OF PROJECT DIRECTORS

Another important preliminary to the implementation of the demonstration projects was the determination of the responsibilities to be carried by the project directors in the institutions. This decision was not made by the Project Conference Group, but was reached in each institution. For the most part, it was agreed by the administration, the faculty or the service staff, and the project director that the project director could best contribute to the study by performing the following tasks:

(1) Actively participating in the appointed committees on nursing in disaster.

(2) Assisting the chairman of the curriculum committee or the staff education director in the development of the educational framework for the project.

(3) Participating in faculty and staff inservice educational activities.

(4) Working with the faculties, according to the adopted plan, in curriculum analysis.

(5) Maintaining resource materials and an extensive bibliography.

(6) Assisting in working with related community agencies according to the overall plan of the project.

(7) Assisting in the preparation of inventories or studies within the study.

(8) Preparing or assisting in the preparation of reports on the study.

TEACHER PREPARATION

It is, of course, a truism that whenever new goals are accepted for a curriculum, all faculty members must appreciate the importance of these goals, must be aware of their implications for curriculum content, and must have some knowledge of the specifics of this content. In the case of disaster nursing, this need was heightened by the decision not to treat this subject as a separate specialty with a specialist on the faculty to assume major responsibility for identifying the goals and seeing to it that they are achieved. The agreement that disaster nursing content and methods of helping students to learn it can best be developed by the teachers in the clinical areas had an obvious corollary: All faculty members in an educational program preparing its students to function in a disaster must have considerable depth of knowledge about disaster nursing.

A. SURVEYS OF FACULTY PREPARATION

According to this reasoning, preliminary to developing its part of the project, each of the participating educational units determined the extent to which its faculty members were prepared to assume their appropriate roles in the preparation of students in disaster nursing. In each case, the inventory yielded findings similar to those of a questionnaire survey of 1,194 educational programs. While on each faculty there were some members who had taken a course in first aid or disaster nursing or had had actual experiences in a disaster, an equal or greater number had had no disaster nursing preparation whatsoever.

Moreover, from the way they participated in these surveys, it was apparent that the faculty members varied greatly in their interest, knowledge, and enthusiasm for the teaching of disaster nursing. This interest extended over the range from those who said, "If there is a nuclear attack, I won't be here to worry about it," to those who said, "I feel passive interest with mild curiosity," and the rare remark, "I look forward to the project with the anticipation that it will be helpful to me in curriculum construction in my own situation."

The apathetic attitude expressed by many of the nurse teachers reflected that of the average citizen. Those who had a positive viewpoint were the ones who had attended mass casualty care or other disaster nursing courses, had had military experience, or had had nursing experience in an actual disaster.

Obviously, before the study could proceed it was necessary to institute a process or procedure that would help the faculty members accept and prepare for their roles in the project.

B. FACULTY INSERVICE PROGRAMS

Each participating educational unit developed its own plan for preparing its faculty members. These plans included two general types of activities, courses offered outside the institution and an inservice program.

Arrangements were made for faculty members to attend courses, institutes, and conferences sponsored by other organizations, such as the mass disaster care courses offered by the military services, the February 1960 course offered to nurses by OCDM and ANA, courses in civil defense offered at the State level and institutes and conferences held under the auspices of the AMA.

Programs were also developed by the faculties within the institutions for the self-education of their members.

1. Advantages

The inservice program developed within the institution appeared to be more productive than the courses offered outside the institution. It provided a means of capitalizing on the abilities of the individual members of the faculty; it allowed for concentration of content related to professional nurse responsibility; and most important of all, it provided a real opportunity for the faculty members to grow together as a group.

In addition to these advantages, the faculties considered this type of inservice program important for the following reasons:

(1) An inservice program could be planned around the needs of the group. During the time span of the project, most of the courses and institutes offered by other institutions or agencies were sponsored by the military or the medical profession. While excellent in quality, they were designed primarily for the needs of the sponsoring organizations.

(2) An inservice program could be planned to reach the largest number of instructors in the shortest period of time.

(3) An inservice program could be conducted by any school or group of schools and would therefore be appropriate for a pilot project.

(Funds for travel and extra space allotments at military courses are not available to all schools.)

Attendance by faculty members at institutes and courses offered by other agencies provided a nucleus of instructors who could contribute from either a medical, special organizational, or agency viewpoint. Besides, these persons had the opportunity to hear outstanding speakers on civil defense and mass casualty care and to participate in a multidisciplinary educational approach in defense problems. Experiences gained at these courses were extremely valuable to personnel in the project.

This is not to say that the development and implementation of the faculty inservice programs in disaster nursing presented no difficulties. Among the problems that were encountered were those relating to the timing and scheduling of the faculty "course," the identification of appropriate content, the selection of methods for presenting content, and the involvement of all those who would be participating in the preparation of students to function in a disaster.

2. Timing and Scheduling

The time allotted to formal faculty preparation varied from school to school. The total time allotted by any school did not exceed 30 hours.

To the faculty members, who already had a full teaching load, this amount of time, in itself, created a problem. This problem was complicated by the length of the period over which the faculty course was spread—a period that was influenced by the newness of the subject matter and the need for the faculty members to assimilate it in considerable depth. It takes time to accept a new philosophy and assimilate new facts, to transfer these into a working knowledge, and then to conceptualize how they can be planned as an integral part of day-to-day instruction. The faculty inservice program therefore could not be compressed into a few consecutive all-day sessions, but had to be extended over a period of several weeks.

On the other hand, the faculties recognized that they had a responsibility to get started on the work of planning for the introduction of disaster nursing content into their curriculums. It was obvious that this work could not be postponed until all faculty members were fully prepared to undertake it. To resolve this dilemma, the faculty groups decided to start their work on the curriculum before the conclusion of the inservice programs. During the interval when they were both learning and working, they relied on the experiences and knowledge of those of their members who had had some preparation in disaster nursing to

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bridge the gap until other members were more nearly ready to accept the philosophy of disaster nursing.

3. Content

Because disaster nursing content had not been identified, topics that were related to disaster nursing or mass casualty care were selected for study by the faculties. These topics did not vary greatly from one institution to another. As an example, the topics chosen for the inservice program at the University of Minnesota are presented here.

Understanding Disasters—Natural and Enemy-Caused: U.S. Disasters, Enemy-Caused Disasters, Problems Created by Disasters.

Physical Effects of Disasters: Chemical Warfare, Biological Warfare, Radiological Warfare.

Protective and Survival Measures: Evacuation, Shelter, Survival Care, Resuscitation and Care of Wounds.

Organization and Planning in Disaster Preparedness: Responsibilities and Organization for Civil Defense and Disaster Relief at All Levels.

Medical Care Plan for Mass Casualties: Role of the Nurse in Disaster, Priority of Care, Sorting Requirements of Medical Facility, Civil Defense Evacuation and Hospitalization, Military Evacuation and Hospitalization.

Psychological Aspects of Disasters: Psychological Research, Behavior in Disasters, Reactions to Civilian Disasters and Atomic Bombing, Prevention and Treatment of Psychological Casualties, Problems of Workers in Disasters.

Children in Disasters: Needs of Children, Conditions That Influence Reactions, How Children Handle Stress, Reactions to Disaster Experiences, Assistance to Child.

4. Methods

Lecture-discussion methods were usually employed. In addition, films and other visual materials were utilized, and some speakers from outside the institutions were obtained. Also, bibliographies and other materials relating to the chosen topics were prepared. For example, the project director at the University of Minnesota prepared bulletins of about 20 single-spaced pages that contained pertinent material and a bibliography on the topics selected for faculty study.

Since it was considered desirable for faculty members to have actual disaster nursing experience, the nursing service of the National Red Cross agreed that if a disaster presenting a variety of nursing problems should occur, the faculties in the project programs would be provided with a structured observational experience.

5. Participation

The involvement of all those responsible for teaching students is a problem that will undoubtedly face many faculty groups as they plan inservice programs and arrange for the curriculum studies which are prerequisite for teaching disaster nursing. In many educational institutions, some of the teaching of students is delegated to personnel in cooperating institutions. Even when all nursing courses are taught by faculty members employed by the institution that offers the educational program, the clinical learning fields may be widely scattered, so that it is difficult for the total faculty group to get together as frequently as is required for a good inservice program in disaster nursing.

The fact that this problem is not an insurmountable one was proved in the project. Two of the educational programs with instructional personnel in separated facilities were able to bring together all those involved in teaching nursing for the necessary faculty inservice preparation.

C. EXAMPLE OF FACULTY PREPARATION IN ONE SCHOOL

One of the agreements reached early in the study was that materials which the pilot institutions used or developed should be helpful to or usable by other educational programs and nursing services. With this in mind, a picture of the activities relating to faculty preparation in the Massachusetts General Hospital School of Nursing plan is presented here.

1. Inventory of Faculty Preparation

The faculty of the Massachusetts General Hospital School of Nursing used an inventory to determine the extent to which its 40 members had participated in activities related to disaster nursing preparedness. The specific activities studied were:

(1) Completion of a first aid course in the past 3 years.

(2) Recipience of a First Aid Instructor's Certificate in the past 3 years.

(3) Completion of a disaster, mass casualty, or civil defense nursing course.

(4) Participation in the teaching of a course in disaster nursing.

(5) Teaching of nursing skills to groups other than professional nurses.

(6) Active duty service in one of the military nursing corps.

(7) Participation in a nursing capacity in an actual disaster.

(8) Participation in the formulation of a disaster plan for a hospital or a health agency.

(9) Participation in practice drills of an institutional or agency disaster plan.

The first two activities investigated were concerned with first aid and participation in both was quite limited. Two of the 40 faculty members reported that they had completed a Red Cross or other recognized first aid course in the past 3 years. One of these two instructors is the only member of the total group who stated that she had received a First Aid Instructor's Certificate during this same period of time.

Nine of the faculty members had completed a disaster, mass casualty, or civil defense nursing course. One reported that she had completed three such courses, all in 1958; another had completed two, the first between 1950 and 1953 and the second in 1958. These courses were sponsored by several different organizations, the civil defense organization and schools of nursing being the two most frequently mentioned. With one exception, all of these courses had been completed during the previous 4 years. Their length ranged from 10 to 40 hours; courses of 20 and 40 hours were the most frequently mentioned.

One faculty member reported that she had participated in the formulation of a hospital plan. Seven stated that they had participated in "dry runs" or practice drills of this type of plan. One instructor reported that the "dry run" in which she had participated was a ward fire drill. The other six stated that they had participated in plans of a more inclusive type.

In summary, 20 of the 40 faculty members had participated in at least one of the activities investigated in this study. Nine reported one activity, six reported two activities, and three reported three activities each. Of the remaining two instructors, one had participated in five activities and the other in seven. At least one instructor in each area of the curriculum had particupated in one or more of the activities under investigation.

2. Scope and Objectives of the Inservice Program

As the Committee on Faculty Preparation in Disaster Nursing made plans for the inservice program, it recognized that because of time limitations, the course could provide only an introduction to the topic of disaster prepardness and to the multitude of problems inherent in any disaster situation. Therefore, each faculty member would have to develop further understanding and technical skills, as she felt it necessary, by additional reading, discussion, and practical experience. The program had the following objectives:

(1) Develop an awareness of the problem of preparing for natural or enemy-caused disaster.

(2) Acquire knowledge of thermonuclear weapons, their effect on mankind, and the medical problems thus created.

(3) Understand survival care and its implications for professional nurses as citizens.

(4) Develop an appreciation of human behavior during disaster.

(5) Acquire knowledge of basic operational planning for disasters by administrative agencies, medical services, and public health and welfare groups.

(6) Understand the principles underlying management of mass casualties.

(7) Acquire knowledge of extended functions for professional nurses in clinical nursing and administration necessitated by disaster.

(8) Begin to appreciate the importance of incorporating concepts of nursing during disaster in the curriculum.

3. Participation

In planning the inservice program, the faculty committee hoped to secure the participation of all those involved in the preparation of the school's students. Accordingly, invitations were extended to, and were accepted by, the instructors in the institutions where the students were receiving obstetric and psychiatric nursing experiences. The strengthening of relationships with these instructors that resulted from this inservice program was one of the important byproducts of the demonstration project.

4. Scheduling

The experience in the Massachusetts General Hospital School of Nursing illustrates the trial-and-error nature of attempts to arrange a workable schedule of inservice education activities.

After comparing the usual content and time allotment in similar courses offered by the State civil defense program, Walter Reed Army Institute of Research, and the nursing service's inservice program, the committee decided that a minimum of 24 hours would be required to present the material.

Initially, the committee was of the opinion that a 3-day impact course would reach the largest number of instructors in the shortest period of time. This proved to be an impossibility, so as an alternative it was decided to offer the course to half of the faculty members in 1 week and to repeat it for the remainder in the following week. Because of the instructors' teaching schedules and other responsibilities, it was not possible to carry out this plan.

The plan that was eventually adopted consisted of a 28-hour course extending over a 10-week period. Twenty hours were devoted to formal class presentations and 8 hours to supplemental films. The faculty was divided into two sections for the formal classes; one section met on Mondays from 3:30 to 5:30 p.m., and the other section met at the same time on Tuesdays. The films were shown on Wednesday, Thursday, and Friday afternoons. This plan made it possible for instructors to attend one section meeting and one film showing each week.

In addition to being the most feasible plan, this scheduling offered several advantages over the earlier ones. The time between meetings gave each instructor an opportunity to think through her own feelings, attitudes, and philosophy on mass casualty care. Group work on the curriculum analysis was carried on simultaneously with the last half of the inservice program, and many of the instructors felt that the concurrent course helped them considerably in their committee assignments.

Originally, the committee was not able to plan time in the program for extensive practice in techniques. During the course, however, many requests were made for practice periods in splinting, application of burn dressings, patient evacuation carries, estimation of the percent of burns and of fluid requirements, administration of open drop ether, and emergency delivery. Six hours were added to the course to provide opportunity for this practice.

5. Course Content and Organization

The content of the course is listed on the chart on page 20. It was organized under two general headings—Organization for Disaster, and the Nursing Role and Responsibilities. Organization for Disaster included the role of the American Red Cross and of Civil Defense, medical facility organization, public health and welfare services, and the place of the school in disaster. Introduction to Disaster, Human Behavior, and Sorting were treated as separate topics.

Two approaches—clinical care and leadership—were utilized in studying the nursing role and nursing responsibilities. Expanded functions of the nurse were explored. They included emergency maternity care, management of burns and fractures, irradiation syndrome, and improvisation of equipment.

6. Teaching Methods

The chart indicating the content of the inservice education course at the Massachusetts General Hospital School of Nursing (fig. 1) also shows the teaching methods used. These were chiefly lectures, films, and group discussions and practice. Other less frequently utilized methods were the simulation of disaster situations and the solving of certain hypothetical disaster nursing problems.

a. Lectures

Speakers were obtained from local military installations and Civil Defense agencies as well as from within the nursing department.

b. Films

Films were readily available from military and civil defense agencies. They were used to supplement the material presented in class in an effort to give the course more breadth and depth. Instructors felt these films were worthwhile and they commented freely about them. In general, the value seemed to be related to the interest stimulated about topics discussed in class. The films also served as a means of reviewing first aid principles and resuscitative care and of portraying some of the potential functions of nurses during disaster. One of the responses not anticipated by the planning committee was that some of the films served to condition or desensitize some instructors to the sight of critically injured casualties. The faculty had some difficulty in interpreting this reaction, but it was thought that it might be a result of a relatively "protected" type of nursing experience or an expression of rejection of mass casualties and the proposed expanded role of nurses. After instructors had had a chance to talk about their reactions, many of them felt the films were very valuable and recommended their use in future programs.

c. Simulation of disaster situations

One of the faculty members who was a midwife devised an extremely effective way to simulate an emergency delivery. Casualty simulation was used only once in the program but with great success. Two committee members were made up with cosmetics to simulate casualties with extensive first, second, and third degree

Figure 1

Faculty Inservice Education Course in Massachusetts General Hospital School of Nursing

Class	Content	Method	Weekly film	Film source
I	Introduction to Disaster Nuclear Warfare Survival Care.	Lecture.	Day Called X. Nerve Gas Casualties and Their Treatment.	State civil defense agency. Do.
II	Human Behavior in Disaster.	Lecture.	Combat Psychiatry: The Battalion Medical Officer.	U.S. Army.
III	Roles of Civil Defense and American Red Cross. Medical Facility Organization "Lease on Life."	Lecture. Film.	Disaster and You. Disaster Plan (Henry Heywood Hospital).	American Red Cross. State civil defense agency.
IV	Public Health and Welfare Services in Disaster.	Panel discussion.	Public Health Problems in Mass Evacuation. Mass Feeding (Film Strip).	State civil defense agency. American Red Cross.
V	Place of School in Disaster Sorting—Early Resuscitative Care.	Lecture. Slides.	Early Resuscitative Care of the Severely Wounded.	U.S. Army.

VI	Clinical Nursing: Extended Function of Nurse. Emergency Delivery.	Group discussion. Demonstration.	Sucking Wounds of the Chest. First Aid for Fractures. Skull, Spine, and Pelvis.	State civil defense agency or U.S. Navy. U.S. Navy.
VII	Clinical Nursing: Irradiation. Improvised Equipment.	Lecture. Demonstration.	Management of Burns, Part I—Supportive Care. Management of Burns, Part II—Local Care.	U.S. Army. Do.
VIII	Clinical Nursing: Burn Therapy. Fractures.	Lecture. Demonstration. Limited group practice.	Mouth-to-Mouth Rescue Breathing. Cricothyroidotomy. Disaster Anesthesia.	U.S. Army, State civil defense agency, or U.S. Navy. American Medical Association.
IX	Principles of Management in Mass Casualty Situations.	Small group discussions.	Debridement-Soft Tissue Wounds. To Live Tomorrow.	State civil defense agency or U.S. Army. O.C.D. Region I.
	Application of Principles of Management to Nursing.	Small group discussions.		

burns and the resultant shock. This provided an opportunity for the group to estimate the percent of surface burn and fluid requirements as well as to apply a burn dressing. In planning this session, the committee members learned that with practice, the application of cosmetics for casualty simulation can be done swiftly and skillfully.

d. Group problem solving

An effort was made to help the participants to develop general principles of leadership associated with disaster situations and during the last session the group analyzed the following four problems specifically related to the nurse's role in disaster. These hypothetical situations were designed to focus attention on the nurse's ability to manage large wards with little or no professional assistance, to organize under chaotic conditions, to utilize volunteer help—both trained and untrained—and to develop disaster nursing care procedures and programs.

Group 1. Utilize volunteer help, both trained and untrained.

Areas to be considered:

1. Sources of help
2. Identification of leaders
3. Identification of abilities and skills
4. Methods of teaching

Group 2. Develop disaster nursing care procedures.

How would you teach a lay person to give an intramuscular injection?

1. Identify problems
2. Prepare the procedure

Group 3. Develop disaster nursing care programs.

Situation: There are 2,000 people to be immunized against typhoid fever (1,550 adults and 50 children) following a flood in August. Typhoid fever has broken out. Inoculations are indicated. A shipment of 200 20-cc. vials of typhoid-paratyphoid vaccine has arrived. You have on hand:

1 dozen 10-cc. syringes
100 needles
4 sterno cans
4 basins
a few empty coffee cans
cotton
soap and water
identification tags from C.D.
pads of paper and pencils

The standing orders are:

Three doses 0.5 cc. once a week for 3 weeks to be given s.c. if the person has never had the vaccine.

One dose of 0.1 cc. intradermally if the person has had the vaccine within 2 years or less.

Assignment: You are to set up the Clinic and are responsible for giving the inoculations over the 3-week period to the 2,000 people in the community. You recall that an Emergency Hospital has been set up 20 miles away. You think there may be a Coleman stove in it; if so, that would give you two burners to work with.

Group 4. Organize under chaotic conditions.

Situation: The place is Everett, Mass. The time is 1:30 a.m. on Saturday, July 1. The incident occurred in a large chemical plant.

One of the vats in the main building had sprung a leak and set off multiple explosions. The power of the explosions was so great that the main building collapsed, debris was blown through the air, fire broke out, sulfuric acid fumes pervaded the air. Windows in the nearby buildings and water mains were broken. Fire and rescue squads from the plant began to function immediately. The fire fighters had to rely on chemical fire extinguishers. The rescue squads began bringing out many injured workers. Some had been thrown great distances by the blast; large numbers had multiple wounds and fractures. Those near the exploded vats were severely burned, and the workers in nearby buildings were struck by flying glass.

The company immediately notified the city fire department, the police, and the nearest hospital, the Everett Private Hospital. It was estimated that approximately 300 people were injured. There are 60 on the night shift in the main plant. The ambulatory injured immediately went to the plant infirmary.

As soon as help came, the immediate evacuation of the severely injured began. All stretcher cases were to be sent to the Everett Private Hospital.

The Everett Private Hospital has 150 beds and 140 patients. There are four medical-surgical wards of 20 beds each, a pediatric ward of 20 beds, a maternity ward of 10 beds, and two private floors of 20 beds each. They also have two operating rooms—one for major surgery and one for minor surgery—and a delivery room. There are four graduate nurses and four senior students on night duty. Dr. Smith is in the delivery room attending his private patient in late first-stage labor. The hospital has no disaster plan.

You are the supervisor on night duty and are in charge of nursing. The director of nursing is on L.O.A. due to illness. You are notified patients will arrive in 30 minutes. You phone Dr. Jones, the director, who has gone for the holiday weekend to York Beach, Maine. He is stunned because this couldn't happen to him! He tells you Dr. Smith will be in charge until he arrives. It will take him about 2 hours.

You do a quick recall of available help: The graduates live out; there are 26 student nurses in the nurses' home. "Thank heavens I had that course in disaster nursing last month," you think, and start out.

Assignment: How would you, the night supervisor, plan to meet the situation? What principles of nursing during disaster would you apply in meeting this situation?

e. *Bibliography*

A bibliography was prepared to assist faculty members to explore more fully the topics presented in the classes. The reference source proved to be extremely valuable as instructors searched for ways to increase their understanding and eventually to enrich the content of their courses.

7. Reactions of Faculty Members

Initially, the faculty members reacted to the "required" course in a variety of ways. Some were very enthusiastic because they felt they needed to know more about disaster nursing generally and they believed the course would help them in curriculum construction. Those who appeared antagonistic to the program felt resigned or indifferent to the situation. However, responses to an opinionnaire circulated at the conclusion of the course showed that somewhere and somehow during the course, those who had originally approached the subject of disaster nursing with a resigned attitude had become personally involved in it. As one faculty member put it, "Personal involvement in ominous material creates something within you which you can't run away from." Comments like this indicated that the acceptance was not a passive one, but one that included recognition of the major role that the teacher of nursing plays in national security.

Not only was the personal involvement referred to directly, but criticisms indicated that the faculty members had accepted their responsibility and were asking for more realistic problem solving and practice sessions in the estimation and treatment of burn victims, the handling of victims, the teaching of I.V., the management of emergency delivery problems, and other tasks that would be assumed by the nurse. Comments showed not only a change of attitude but a real depth of understanding of the subject.

"I was pleased that I had attended the course . . . the sense of helplessness was not as great . . . the philosophical search continues

> . . . however, I feel that professionally and personally I now have something positive and concrete to contribute in relation to disaster planning or in the participation in an actual disaster situation."
> "It seemed good to participate in a faculty program whereby we actually worked together and shared . . . it promoted the feelings of comradeship and togetherness."

> "I think this has been a great achievement . . . that faculty had a real opportunity to grow together as a group in another area where seniority is perhaps less important, where people are aghast and frightened and yet try to accept and plan with some faith."

The reactions of these faculty members to specific aspects of this program may be useful to others who are planning inservice programs for graduate nurses. For example, it would seem that sequence of topics and teaching methods are primary considerations in developing such programs. When attention in the course was focused on the role of the nurse and the clinical area, favorable attitudes were noticeable. Some participants expressed their attitudes as follows: "We began to finally talk about all the things that were of prime interest to us as nurses." "Nursing class had practical day-to-day content relevant to my responsibilities." "The information directly related to nursing I felt was useful."

On the other hand, opinionnaire answers showed that the group responded less favorably to the classes on organization for disaster. Most of these classes were presented by the lecture method, with little time for discussion or questions. Instructors had been provided with manuals published by the Disaster Nursing Committee of the Massachusetts Civil Defense Agency. The problem-solving approach with group discussions might have been used effectively in relation to organization for disaster, as it was later in discussing the nursing role and responsibilities.

It seems pertinent to mention that a major curriculum revision, not related to the disaster nursing project, was in progress, and an inservice program for clinical instructors, although already under way, had to be temporarily postponed until the completion of the program in disaster preparedness. The establishment of priorities in inservice programs and interpretation of this to faculty members would appear to merit thoughtful consideration by those responsible for devising and implementing such programs.

To summarize, the faculty development resulting from this inservice program consisted of:

(1) A marked change in interest in the project and in the subject of disaster nursing.

(2) A widespread desire on the part of individual members to increase their understanding and knowledge of the total subject as well as to explore specific areas.

(3) A positive attitude toward the inclusion of disaster nursing content in the curriculum.

(4) Motivation to improve current curriculum content.

(5) A readiness to accept the next step in the study—curriculum analysis.

These outcomes were also characteristic of the inservice programs developed by the other faculties participating in the project.

DEMONSTRATION IN THE NURSING SERVICE OF THE MASSACHUSETTS GENERAL HOSPITAL

A. GENERAL DESCRIPTION OF THE NURSING SERVICE

The nursing service is one of the two divisions of the Nursing Department of the Massachusetts General Hospital, the other being the school of nursing.

The nursing service is responsible for the nursing care of all patients in the hospital and all those attending the ambulatory patient clinic and for providing an environment that is conducive to learning and research.

The employees of the nursing service number 712, of whom 412 are professional nurses, 72 are licensed practical nurses, and 228 are nursing aides and other personnel who have had no preservice preparation in nursing.

Top-level administrative personnel consist of a director, an associate director, a coordinator of patient education and nursing referral, a coordinator of team planning, a coordinator of staff education, and seven assistant directors—one each for the five inpatient units, one for the three operating rooms, and one for the ambulatory patient clinic.

The programs for the development of nursing service personnel are conducted under two kinds of auspices. The staff education department is responsible for orientation, ongoing education, and specific programs for the various categories of nursing personnel regardless of their place of assignment. In addition, each assistant director is responsible for the development of programs to meet the needs of the employees in her unit; these programs are usually concerned with a particular clinical area.

B. PHILOSOPHY ABOUT DISASTER NURSING PREPARATION

The following statement of philosophy was developed for the entire Nursing Department of the Massachusetts General Hospital.

> In peacetime, the professional nurse has responsibilities for helping people maintain their optimal health, for giving comprehen-

sive care based on the needs of the person who is ill, and for assisting people who have been ill to adjust to their respective roles in everyday living as they return to their homes and communities.

When disaster strikes, an irreversible change in a sociocultural pattern results. We live in the age when not only natural disaster but also disaster from modern warfare may strike. The Government, having recognized this impending threat, has planned for its survival and the survival of its people, through the establishment of the Office of Civil and Defense Mobilization. The armed services and the Red Cross have demonstrated how one can survive when there is a plan and people are organized to carry out the plan.

Much of the knowledge needed to cope with natural disasters, such as fires, floods, and explosions, is basic war disaster nursing, but the latter calls for an attitude and knowledge unique to casualty care. In war disaster, the philosophy of sorting patients according to priorities for treatment and giving the best care to the most patients needs considerable interpretation to nursing groups. It It is anticipated there will be a great disparity between the number of victims and medical personnel and facilities. If the survivor with the most knowledge and leadership in the situation is a nurse, she will be expected to extend the practice of nursing beyond the usual boundaries of peacetime nursing. The clinical and value judgments may not always be the best, because the shock of disaster may numb her acuity of observation and judgment in various ways and in varying degrees just as it numbs the acuity of other survivors. However, the victims and the Government will expect the nurse to assume her professional and civilian responsibilities to the best of her abilities. In order that she may know what to do and how to do it, the nurse must be taught and motivated to prepare herself and others to assume active roles in the areas of self-survival during disaster.

We believe this philosophy is one which should permit us to function as individuals and as nurses in a disaster. It is the responsibility of the school through its various committees for disaster to interpret the philosophy to the faculty. The faculty, having accepted it, has the responsibility for incorporating it into the various strands for background teaching and in the core course for the students. The acceptance of the philosophy and generalizations of disaster nursing should help the student to prepare herself to interpret her possible role as a nurse within the framework of medical plans for disaster and motivate her to keep abreast of the current changes and the implications for nursing.

Since we are living in a nuclear age, the Nursing Service at Massachusetts General Hospital believes that all its personnel should be prepared to function effectively in time of disaster when the disaster is contained within the hospital and immediate community and that its personnel should receive basic instruction in preparation for large-scale disaster involving mass casualty care.

C. GOALS FOR THE PROJECT

A committee was appointed to plan and direct the activities of the disaster nursing study. This committee consisted of persons who had had disaster nursing experience or had attended civil defense or mass casualty courses and included representation from each inpatient unit, the operating rooms, and the staff education department.

The goals of the program planned by the committee and accepted by the nursing service administration were stated in the form of functions and activities. These goals were:

(1) To provide a core course in disaster nursing for professional and practical nurses.

(2) To provide basic survival, rescue, and first aid training for nursing service personnel.

(3) To extend the skill levels of nursing service personnel.

(4) To teach nursing techniques to nonnursing personnel and volunteers.

(5) To assist in providing training resources for other groups as requested.

(6) To integrate disaster training in day-to-day nursing practice.

(7) To orient nursing service personnel to the hospital disaster plan.

(8) To evaluate disaster nursing training progress.

D. SURVEY OF EXISTING INSERVICE EDUCATION ACTIVITIES

A survey was made of the courses and other planned activities currently being conducted by the inservice education department to determine the extent to which they were contributing to the attainment of the goals of the disaster nursing project.

Two courses in disaster nursing were found to be contributing to the achievement of the second objective "to provide basic survival, rescue, and first aid training for nursing service personnel." One of these courses was for professional and practical nurses, the other for aides, ward helpers, and ward secretaries. It was from the first of these courses, which included the Red Cross Standard First Aid Course as well as content on civil defense and survival measures, that the core courses in the project were developed. The second course was also developed further as part of the project.

Several courses and activities were found to be contributing to the achievement of the third objective "to extend the skill levels of all nursing service personnel." These were:

(1) A supervisors' program—a 36-hour course designed to assist the supervisor to develop a better understanding of her role and to guide her in developing attitudes conducive to effective supervision.

(2) A basic head nurse program—a 34-hour course for head nurses, assistant head nurses, and staff nurses who show potential for a head nursing position. This is essentially a course in ward management.

(3) An advanced head nurse program—a 15-hour course for head nurses who have completed the basic program. Content includes leadership principles, time planning and assignments, and on-the-job teaching techniques.

(4) A nursing aide program—a 30-hour on-the-job training course for personnel without previous experience as aides.

(5) Monthly inservice education meetings for staff nurses and licensed practical nurses. These meetings emphasized nursing skills and techniques.

The staff education department was also participating in a training program for X-ray technicians in which several hours were allotted to the teaching of simple nursing procedures such as temperature, pulse, and respiration; blood pressures; and enemata. This activity was contributing to the achievement of the fourth objective, "to teach nursing techniques to nonnursing personnel and volunteers."

E. THE CORE COURSES

Initially, the committee planned only one core course in disaster nursing for professional nursing personnel in all types of positions and practical nurses. The first two times this course was given, priority in attending it was extended to those in key nursing service positions—the assistant directors, supervisors, and head nurses—for the reason that these groups constituted the most stable personnel and that therefore it was from their preparation that the hospital was most likely to realize the benefits from its investment in the course. Professional staff nurses and licensed practical nurses were included among the participants in the third and fourth classes that took the course. The participant-evaluations that were made at the conclusion of these classes indicated that there was need for two separate core courses—one for professional nurses and one for practical nurses. Accordingly, a course was developed for each of these groups.

Both the professional nurse course and the practical nurse course were modifications of the original course and reflected the framework within which this course had been constructed. This framework was developed in the light of two considerations. First, it was recognized that this course was only one of many conducted by the staff education department and, although a vital part of the inservice education program, could not interfere unduly with other essential staff development programs. Second, the Disaster Nursing Committee was hopeful that eventually all the professional and practical nurse personnel would attend the course or courses. In view of these considerations, it was concluded that the core course for professional nurses should provide a minimum amount of core content that would be appropriate to the needs of all professional nurses, regardless of their positions within the nursing service. The framework for the core course for practical nurses was similarly constructed.

1. Teaching Resources and Methods

Insofar as possible, the speakers and discussion leaders for the courses were drawn from the hospital personnel. The nurse instructors, for the most part, were members of the Disaster Nursing Committee. As has been pointed out, they had had previous preparation or experience in disaster nursing. To help them to bring their knowledge of mass casualty preparedness up to date, arrangements were made for several of them to attend mass casualty courses offered at Walter Reed Hospital, Brooklyn, Battle Creek, Fort Sam Houston, and the Massachusetts Civil Defense Agency. All the physician instructors had had military experience.

Speakers from the Massachusetts Civil Defense Agency and the Boston Chapter of the American Red Cross were called on for discussions of the structure and function of their organizations.

When an instructor for an important area of study could not be found, the committee used films as a substitute. For example, the film

"Disaster Anesthesia" was used because an anesthetist was not available to present the needed material.

Visual aids were obtained from several sources: American Red Cross, Massachusetts Civil Defense Agency, Regional Headquarters of the Office of Civil and Defense Mobilization, U.S. Army, and American Medical Association's Motion Picture Library.

In addition to lectures and films, practice sessions were used. Also, group problem-solving sessions were instituted upon the suggestion of a head nurse who, after completing the course, encountered a disaster-like situation in her ward for which she thought she would have been better prepared had she had the opportunity to practice some of the concepts presented in the course.

2. Scheduling

For the first three groups, the course was given for one 2-hour session per week over a period of 3 months. This arrangement caused considerable dissatisfaction. The participants found that it was frequently difficult to arrive on time for the classes, to leave job problems and worries behind them, and to adjust to the abrupt change in degree of physical activity. The staff education department found that it was necessary to cancel the monthly inservice meetings for both the professional staff nurse and practical nurse groups and to postpone the start of other scheduled courses until the disaster nursing course was completed.

Accordingly, the schedule was changed to one of three all-day classes that were held 1 day a week for 3 successive weeks. This pattern was well received by all concerned. Although the course was presented in a more concentrated period of time, the participants had 3 weeks to think about and work through their reactions to the content. The personnel conducting the course were of the opinion that those who attended the fourth course were more stimulated and involved in the total program than those who had had the more prolonged course. Moreover, the all-day meeting pattern permitted attendance by those who were permanently assigned to evening and night tours of duty.

This is not to say that all problems were automatically solved by the new pattern of scheduling. At the time the NLN project came to an end, efforts were being made to work out some plan whereby operating room personnel could attend the course.

F. COURSE FOR PROFESSIONAL NURSES

The content for the original course was developed on the basis of a survey of the usual content in a disaster nursing course. The resources used in this survey included the Medical Service, Massachusetts Civil Defense Agency; the Disaster Nursing Committee, Massachusetts League for Nursing; and the Boston Chapter, American Red Cross.

Experience with the course suggested the need for some changes in format and content. Instruction on the organization and operation of civil defense and medical installations was combined with information about Red Cross agreements, and instruction on radiation syndrome was included in the class devoted to home and shelter preparedness.

1. Lesson Outline

The outline of topics in use at the time the NLN pilot project came to an end follows:

Unit I: Need for planning to cope with conditions created by disasters

A. Threat of Disaster
   1. Natural
   2. Enemy-caused

B. Nature of Nuclear, Biological, and Chemical Warfare
   1. Protection and identification
   2. Evacuation and shelter
   3. Survival training
   4. Decontamination
   5. Conventional weapons
   6. Management of injured
      a. Artificial respiration
      b. Syrettes. Film: "Nerve Gas"

C. Organization and Operation of Civil Defense
   1. Relationship and functions
   2. Red Cross agreements
   3. Medical installations

D. Nurses' Responsibility in Disaster
   1. Leadership
   2. Management
   3. Nursing care (clinical nursing)
   4. Teaching

E. Psychological Implications of Disaster
   1. Personal reactions
   2. Psychological first aid
   3. Management of "disaster fatigue" victims
   4. Psychiatric disorders

F. Hospital Disaster Plan

G. Shelter and Home Preparedness

Unit II: Management of mass casualties

A. Triage
   1. General principles and priorities in treatment
   2. Identification of casualties

B. Management of Shock
   1. Recognition
   2. Treatment at point of rescue
   3. Treatment at first aid station
   4. Treatment at hospital

C. Management of Burns
   1. Estimating extent and severity
   2. Treating at point of rescue
   3. Treating at first aid station
   4. Treatment at hospital
   5. Fluid replacement therapy—Practice Session

D. Management of Wounds
   1. Treatment at point of rescue
   2. Treatment at first aid station
   3. Treatment at hospital
   4. Problem of special types of wounds

E. Management of Fractures
   1. Recognition of fractures
   2. Immobilization and transportation of casualties with fractures
   3. Treatment at first aid station
   4. Treatment at hospital
   5. Improvisation of splints

F. Health Services in Disaster
   1. Provision of safe water and food supplies
   2. Provision of health services to evacuees
   3. Health care of special groups
   4. Prevention and control of communicable disease and biological warfare

G. Anesthesia for Mass Casualties
   1. Role of nurse
   2. Types of anesthetics

H. Improvisation of Equipment
   1. Making use of available resources and materials

I. Emergency Maternity Care
   1. Normal delivery
   2. Abnormal presentations
   3. Hemorrhage
   4. Care at site of delivery, first aid station, and hospital

J. Group Problem Solving

A. Situation: On Friday, May 10th, at 11:05 a.m., there is an explosion in a chemical plant situated in Cambridge. The emergency ward at the Massachusetts General Hospital is notified of this disaster at 11:15 a.m. with the report that casualties are on the way and there are "hundreds."

Operation Coconut is put into effect. The foyer of the White Building is set up as a receving and triage center. Since the reports of the disaster now indicate approximately 200 casualties will arrive, the Emergency Ward is organized to receive only those casualties with acute respiratory conditions needing immediate resuscitative treatment. White 6 is selected as the ward to empty and then receive up to 50 patients with burns. The Overnight Ward is also selected to empty and to receive up to 50 patients with injuries involving fractures, etc. It is anticipated that approximately 80 other casualties will have minor injuries requiring services of the Surgical Clinic and no hospitalization.

Problem 1: You are the supervisor/assistant director in charge of the White Building and the overall nursing care of these patients.

a. What are your problems?
b. What information will you need?
c. From whom will this information come?
d. Outline your plan of action.

Problem 2: As head nurse/charge nurse on White 6 you are informed that it is expected that there will be roughly 30 casualties with burns ranging from 40 to 80 percent body area and 20 with minor burns but with complications—respiratory and traumatic. You are to organize for emptying the ward and the reception and care of these casualties.

a. What are your problems?
b. What information will you need?
c. From whom will this information come?
d. Outline your plan of action.

B. Situation: A tornado, followed by torrential rains, struck Boston at 7 p.m., November 24th, without warning. The path of the tornado was one quarter mile wide and 1¼ miles in length where it passed over a small section of the residential section in the southern part of the city. Power lines were broken and lying in the streets, which were blocked by fallen trees and debris. The main business section in which the Red Cross chapter is located was not affected.

First reports stated that approximately 100 homes were affected, 4 of which were destroyed and 96 damaged. One school building, a church, a few small neighborhood stores, restaurants, and gas stations were damaged. People are wandering around in the ruins, trying to gather up odds and ends from their homes.

The rescue squads have estimated 16 persons killed and at least 150 injured. A large number of the injured have been admitted to the already overtaxed Boston City and Massachusetts Memorial Hospitals. The dead have been taken to the morgue, and the majority have not been identified.

The police and rescue workers have already directed about 200 people to the South End House and Cathedral High School for temporary shelter. They report that a number of small children and babies are in the shelter and that some of them are sick.

The report has been received that many of the injured have been going to "Y" drugstore for first aid treatment. The druggist and two clerks have been trying to handle the situation and are running low on supplies. The chapter medical chairman is checking and may set up a first aid station there.

Problem 1: You are told to report to the first aid station, stopping at the "Y" drugstore en route to pick up supplies. Assuming that the station may be kept open beyond a 24-hour period, list the minimum essentials you will try to obtain.

a. Supplies.
b. Medications.
c. Equipment (either procured or improvised).

Problem 2: The medical chairman has set up a temporary first aid station in an empty office building near "Y" drugstore. You have been assigned as the nurse in charge. You have been told by the nurse vice chairman that a first aid worker is en route with some supplies.

Upon arrival you find an old desk, a few chairs, a couple of packing boxes, the medical supplies, and the first aid worker. The power is still off and the phones out of order. Patients are being redirected from "Y" drugstore where supplies have run out.

What immediate steps would you take?

Problem 3: You have been assigned the responsibility of organizing and providing for nursing care in the shelter. The Red Cross disaster nurse vice chairman is assigning another nurse and a practical nurse to help you and will send more nurses if you need them.

Upon arrival, you find that the shelter manager is trying to calm a hysterical, pregnant young woman who doesn't know whether her injured husband is dead or was taken to some hospital. Several volunteers are trying to register the refugees.

a. What immediate steps would you take?

b. How would you delegate responsibility and what initial instructions would you give to the two assistants assigned to you?

Problem 4: Among the shelter occupants are 15 aged persons, several of whom have problems that require special attention:

a. An elderly woman lost her hearing aid in the confusion of being rescued and is quite disturbed without it.

b. Another older woman with a chronic gastric ulcer requires frequent feedings.

c. An aged man had his glasses blown off and his dentures sucked out by the tornado.

How would you handle each of these problems?

Problem 5: While you were making your initial health inspection of the shelter occupants, you found the following problems relating to communicable disease control:

a. A 6-year-old child with suspected mumps.
b. A 35-year-old woman with a dry, hacking cough.
c. An 8-year-old child with a rash.
d. Several cases of pediculosis.

The visiting physician and the health officer have decided that the first three listed should be cared for in the shelter until other arrangements can be made.

a. What are these other arrangements?
b. How would you plan for their care while they remain in the shelter?

Problem 6: A number of the shelter occupants have been separated from their families. Some of the relatives are seriously injured in hospitals, and others have been killed.

a. One man lost his wife and four children. He and his 2-year-old boy are the only survivors. He is uncommunicative and eats very little.

b. A woman with three small children is restless and anxious because her husband and teenage daughter are critically ill in different hospitals. Her mother and father were killed.

c. An elderly man wanders around the shelter, talking incoherently, hunting his wife. She was killed, and he apparently has no relatives.

How would you handle these problems?

2. First aid practice sessions

- A. Artificial Respiration
  - 1. Definition
  - 2. When used
  - 3. Demonstration and practice of methods
    - a. Neilson
    - b. Mouth-to-mouth insufflation
- B. Control of Hemorrhage
  - 1. Use of tourniquet
  - 2. Use of bandages
    - a. Head
    - b. Cap
    - c. Chest
    - d. Shoulder
    - e. Hand
    - f. Extremity
    - g. Sprained ankle
- C. Splints and Transportation
  - 1. Review of signs of fractures and first aid treatment
  - 2. Demonstration and practice of splints for injury to:
    - a. Collarbone
    - b. Rib
    - c. Arm
      - (1) Elbow
      - (2) Forearm
      - (3) Wrist
    - d. Leg
      - (1) Upper and lower parts
  - 3. Carries
    - a. Blanket carry
    - b. Two-man carry
    - c. Chair
    - d. Pack strap
    - e. One-man carry
    - f. Three- and six-man carry

G. CORE COURSE FOR PRACTICAL NURSES

The early experience with the course for both professional and practical nurses served as a basis for developing the core course for practical nurses only. The outline of topics used in this course was much the same as that for the professional nurse course, but some of these topics were presented with less depth and others received a different emphasis. Among the changes were the following:

(1) Omission of administration of nursing services.

(2) Change in emphasis from administration or management role to assistant role.
   - a. Anesthesia.
   - b. Deliveries.
   - c. Psychological care.

(3) Limitation of scope of training responsibilities to the training of auxiliary workers, and emphasis on preparation for this type of training.

The practical nurse core course included the same first aid practice sessions as the course for professional nurses.

H. EVALUATION OF THE CORE COURSES

1. Reactions of Professional Nurses

The reactions of professional nurses to the core course were investigated in two ways:

(1) Through an opinionnaire, filled out by those who had taken the course, that inquired about which aspects they liked and which they disliked, and that asked for suggestions concerning future courses.

(2) Through interviews with a few persons who had taken the course. These persons were asked:
   - a. Have you been able to transfer any of the material learned in the course to everyday situations encountered in the hospital?
   - b. Do you feel that there is any difference in your behavior or reaction to stress since taking the course?

The opinionnaires revealed that many nurses wanted more classes in actual nursing. They felt the basic course helped them bring up to date the content in nursing practice. Several of the younger graduates asked that more time be devoted to the managerial and teaching aspects of disaster nursing or nursing in mass casualty situations.

In the interviews, several nurses stated they had begun the course with a pessimistic viewpoint, thinking only in terms of nuclear warfare. They had had a "When the bomb falls, no one will be here, so what's the use?" type of attitude. After the course, they felt differently and wanted, as one nurse said, "to be around and see what things would be like and be able to help."

Interests varied according to individual needs. One nurse felt the class on proper handling of patients, with emphasis on transportation, was a waste of time, while another nurse had used the knowledge learned in this class. A few head nurses felt there was no similarity between disaster problems, on the one hand, and on the other, the present shortage of personnel combined with a high census.

One supervisor was able to compare her actions and behavior in disaster situations before and after taking the course. The generalized aspects of the hospital for disaster preparedness helped her in the overall managerial aspects as well as in the planning for specific nursing care. Because the majority of those interviewed had not encountered problems of disaster nursing following their taking the course, they could not comment on behavorial changes under stress.

2. Reactions of Practical Nurses

The practical nurses who participated were also asked to answer an opinionaire. All of the group indicated that the course was worthwhile and should be required for all practical nurses. Several mentioned that too much information was presented in too short a time. Others recommended extending the course and lengthening the time for certain topics. The need for more extensive review of first aid measures was listed by a third of the group.

When the instructors were questioned concerning the responses of the practical nurses to the course, they indicated that:

(1) Questions were raised more frequently by this group than by the professional nurses.

(2) Differences in reactions that might have occurred because of the wide variation in age and years of experience seemed to be nullified by their common status.

(3) Active participation reached 100 percent in most classes.

(4) Throughout the course, the licensed practical nurses showed understanding of the professional nurse's leadership role.

(5) The group as a whole revealed a good grasp of the reality factors in a nuclear disaster.

3. Pre- and Post-Testing

The acid test as to whether the core courses were effective, of course, lies in the answers to two questions:

(1) Does the course cover materials not already known to the participants?

(2) Does the course result in a significant increase in knowledge of the kind that will help a nurse function efficiently in a disaster?

To obtain an objective evaluation of the two core courses in terms of these questions, a test was developed for administration before and after each course.

In constructing the test, the committee surveyed the content of the courses and set aside those subjects that covered information of a "refresher" nature. This elimination survey left six broad subjects that related to information deemed essential to nursing in disaster or to the expansion of the nurse's role in disaster. A test on these six subjects was then developed.

Questions

(1) What is the relationship of the American Red Cross organization and the civil defense organization for responsibility in a natural disaster?

(2) What is meant by triage?

(3) How does the concept of triage in a hospital-contained disaster differ from the concept of triage in a nuclear attack?

(4) Irrespective of the kind of injury, what physical conditions would assume top priority for treatment?

(5) What is radioactive fallout?

(6) What protective measures against radioactive fallout are available?

(7) What are four signs to observe while administering drop ether anesthesia?

(8) List four public health problems that you would face in caring for a large group of survivors under disaster conditions.

(9) In an emergency maternity delivery, what presentation would you not attempt to deliver?

(10) What is the rule of nines in determining the extent of body burn? (Use stick figure to illustrate if desired.)

(11) What is the major differentiation in the following classification of burns?

a. Third degree.
b. Second degree.
c. First degree.

(12) Formula: % of body burns × weight in kilograms = total of plasma replacement. Determine the amount of plasma therapy for a burn casualty weighing 154 pounds with 35% body burns. Then indicate the amount of saline and of dextrose in water that may be added in 24-hour period.

(13) List four main features of the treatment for extensive burns.

(14) Situation: You are on duty. You have been notified at 3 p.m. on Friday that 100 patients from a train wreck are being admitted to the hospital. At this time there is no way of knowing how many patients actually will be admitted or how many will be sent to your ward.

What do you see as your role and responsibility? State briefly and, if possible, outline your answer.

This test was utilized to measure the progress achieved in both the professional nurse and the practical nurse core course. However, although the professional nurses and practical nurses who took the test were asked the same questions, the two groups were provided with different answer sheets, and, for certain questions, different answers were considered correct. For example, the practical nurse examinees were not expected to know the scientific bases for some of the nursing decisions, the fluid estimate for burns, how to administer anesthetics, or how to manage normal deliveries, and account was taken of the difference in the achievement level expected of them in scoring their answers to questions on these subjects.

For both groups, the maximum score possible was 100.

The test was given to 15 professional nurses and 16 practical nurses before they took the courses and again at the conclusion of the courses. It was also given to another group of 55 professional nurses who had not taken the course.

The results (fig. 2) indicated that considerable learning had taken place on the part of the members of these two groups. Also, a comparison of the means of the scores made on the pretesting by the two groups of professional nurses suggested that the group of 15 was a fairly typical one insofar as a before-course knowledge of disaster nursing was concerned.

The test was also given to 11 of the 15 professional nurses and to 8 of the 16 practical nurses 1 year after each group had taken its core course. A comparison of the means of the scores made by these two groups of 11 and 8 on the three occaisions when they were tested indicated that there had been some decrease in the examinees' knowledge about disaster nursing in the year following the course but that they had considerably more knowledge at the end of the year than they had had prior to taking the course. When the test was given to other groups of registered nurses 1 year and 2 years after they had completed the course, the results showed that a considerable amount of information had been

Figure 2

Mean Scores Made on Test Administered Prior to and at Completion of Core Courses in Disaster Nursing

Group	Mean scores	
	Before course	After course
15 professional nurses	38.7	74.5
55 professional nurses	37.9	(*)
16 practical nurses	16.9	47.3

*This group did not take the course.

retained but that there was some loss, most of which had occurred after the end of the first year. On the basis of these findings, it was decided that:

(1) The two core courses should be continued for nurses who had not had them.

(2) Refresher courses should be offered every 2 years for the professional nurses and every year for the practical nurses.

I. THE PREPARATION OF AUXILIARY NURSING SERVICE PERSONNEL

In line with the belief that all persons employed by the nursing service should be prepared to function in a disaster, a training program for nursing aides, ward helpers, and ward secretaries was developed. The purposes and objectives of this program were to:

(1) Familiarize personnel with the general need for civil defense.

(2) Help personnel to develop an understanding of the problems inherent in any disaster.

(3) Orient personnel to civil defense functions within the hospital and the community.

(4) Familiarize personnel with the overall hospital disaster plan.

(5) Prepare personnel to function in time of disaster to meet their own needs and to assist in meeting the needs of mass casualties.

(6) Provide basic instruction in first aid.

The subjects dealt with in this training program and the methods used in presenting the content were as follows:

(1) Standard Red Cross Course in First Aid (certificate given), 10 hours

(2) Lectures, 4 hours
    a. Threat of disaster, natural or enemy-caused, 1 hour
    b. Hospital disaster plan, 1 hour
    c. Health services in disaster, 1 hour
    d. Psychological considerations in disaster, 1 hour

(3) Films, approximately 5 hours
    a. Disaster and Public Health Aspects
    b. Lease on Life (Civil Defense Hospital)
    c. Care of Patients with Burns
    d. Disaster Strikes
    e. Day Called X
    f. Control of Hemorrhage
    g. Disaster and You
    h. Mouth-to-Mouth Rescue Breathing
    i. Sucking Wounds of the Chest

J. NURSING AND THE HOSPITAL PREPAREDNESS PLAN

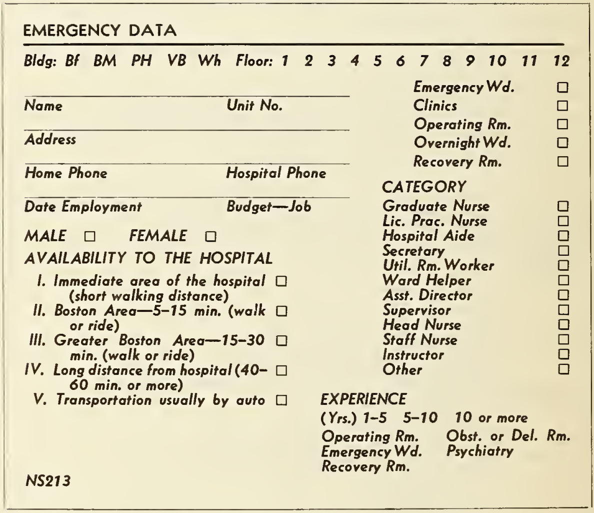
The nursing service subcommittee of the hospital disaster committee serves as the group responsible for the preparation and coordination of the disaster nursing plans that are utilized when a disaster affects the hospital or the immediate community. During the pilot project, the committee's activities were directed toward the preparation of a simple but workable plan. This plan included expedient utilization of present facilities, expansion potential, functions planned for each clinical area, depth of command for administrative personnel, specific assignments, alternate assignments, and an effective system for locating personnel.

1. Development of a Record

Efforts to improve the system for locating personnel at any given time resulted in the development of a new Emergency Data Card (fig. 3).

Figure 3

Emergency Data Card



EMERGENCY DATA

Bldg: Bf BM PH VB Wh Floor: 1 2 3 4 5 6 7 8 9 10 11 12

Name *Unit No.*

Address

Home Phone *Hospital Phone*

Date Employment *Budget—Job*

MALE ☐ *FEMALE* ☐

AVAILABILITY TO THE HOSPITAL

- *I. Immediate area of the hospital (short walking distance)* ☐
- *II. Boston Area—5–15 min. (walk or ride)* ☐
- *III. Greater Boston Area—15–30 min. (walk or ride)* ☐
- *IV. Long distance from hospital (40–60 min. or more)* ☐
- *V. Transportation usually by auto* ☐

Emergency Wd. ☐
Clinics ☐
Operating Rm. ☐
Overnight Wd. ☐
Recovery Rm. ☐

CATEGORY

Graduate Nurse ☐
Lic. Prac. Nurse ☐
Hospital Aide ☐
Secretary ☐
Util. Rm. Worker ☐
Ward Helper ☐
Asst. Director ☐
Supervisor ☐
Head Nurse ☐
Staff Nurse ☐
Instructor ☐
Other ☐

EXPERIENCE

(Yrs.) 1–5 5–10 10 or more

Operating Rm. *Obst. or Del. Rm.*
Emergency Wd. *Psychiatry*
Recovery Rm.

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2. Preparation for Fire

By the time the NLN project came to a close, the plans had had two types of testing. First, several actual small disasters had occurred—a plane accident, a bombing, and a fire. Second, practice fire drills that involved patients as well as personnel had been held. The practice drills, which are part of the annual fire prevention control and patient evacuation training program, revealed that several areas of the plan were in need of revision, namely:

(1) Communications system.
(2) Use of equipment.
(3) Methods of moving patients.
(4) Responsibilities of the charge nurses.
(5) Responsibilities of the other personnel on patient units.

During a practice drill in one of the units, it was discovered that either the mattress fire poles did not fit the mattresses or, if they did, they were too large to go around the stairwells. The maintenance department made the poles smaller. Arrangements were made to place instructions on how to make blanket stretchers alongside these poles. The staff education department taught the head nurses how to make these stretchers so that they could in turn teach their staffs.

3. Resuscitation

The nursing service, through the Disaster Nursing Committee, contributed to the overall hospital disaster training program in two other ways. It initiated showings of the training film "Mouth-to-Mouth Rescue Breathing." In a period of 3 days, over 600 employees saw the film and received wallet-sized instruction cards on the technique. Subsequent to these showings, the following occurred:

(1) The Nursing Practice Committee decided to incorporate the technique in the Procedure Manual.
(2) Special airways that had been developed for use in the mouth-to-mouth airway technique were purchased for each unit.
(3) Requests were received for additional showings of the film to groups both in and out of the hospital.

4. Survival Care

The second contribution to the overall hospital disaster training program was an exhibit on survival care. Part of the display consisted of a series of translucent films mounted in lighted shadow boxes, which depicted the various factors that contribute to an effective survival care program for an individual, family, and community. The exhibit also included a sample pantry containing foods that a family might stock in preparation for a disaster. Located in a prominent corridor in the hospital, the display was seen by all hospital personnel.

K. STAFF ROTATION

As part of the disaster nursing project, the Committee recommended that the nursing service develop a rotation plan that would provide all nursing personnel with a minimum experience in the emergency ward, an acute surgical unit, and an acute medical unit. The rotation experience was of two different types:

(1) The observation type which consisted primarily of an orientation to the new area and usually did not aim at helping the individual to learn or perfect any skills.

(2) The training type in which arrangements were made for the individual to spend sufficient time in a unit to develop or perfect new skills and abilities.

The implementation of the rotation plan posed some problems. Up to the time when the NLN project was completed, observations indicated that the ones who sought rotation were those who had attended a core course.

L. CONCLUSIONS

By the time the NLN pilot project came to an end, the following conclusions had been reached:

1. A workable hospital disaster plan is essential for instituting a program of preparedness for nursing services.
2. A permanent special committee appointed by nursing service is needed to define the scope of and develop a program for disaster nursing preparedness.
3. Administrative support is needed to implement the proposed program.
4. The current inservice program of staff education can facilitate the implementation of the program.
5. A basic course in disaster nursing is a necessary part of a nurse's preparation for employment in the hospital.
6. Refresher courses in disaster nursing should be offered every 2 years for the professional nurse and at least yearly for the practical nurse to compensate for loss of knowledge and to introduce new materials on the subject.
7. Separate courses are needed for professional nurses, practical nurses, and nonprofessional nursing service personnel.
8. The time plan for the courses must be adjusted for personnel from all nursing units.
9. Planned staff rotation is an essential part of disaster nursing preparedness.

THE NLN COMPREHENSIVE ACHIEVEMENT TEST IN DISASTER NURSING

The development of a standardized achievement test in disaster nursing that could be used by the majority of students in basic professional programs was an essential part of the project. This test, designed to test the effectiveness of the teaching of disaster nursing in baccalaureate basic degree, diploma, and associate degree programs, was developed under the direction of the NLN Test Construction Unit. It is also suitable for use in nursing service programs.

A. CONSTRUCTION

The project directors and faculty members from the participating institutions and experts in disaster preparedness, civil defense, and mass casualty care (including one physician) prepared the overall plan for the test and the test items. The plan provided for the testing of knowledge of disaster nursing content and its application in natural and man-made disasters. Test items were built around the situation-approach method. Because disaster nursing involves the transfer and application of knowledge gained in a variety of everyday nursing situations to situations that might be encountered in a disaster, the test was designed for use late in the senior year.

On the basis of this plan, a review draft, which consisted of 226 items, was prepared. This draft was sent for review to 187 faculties of educational units offering programs in nursing (basic baccalaureate, 38; diploma or associate degree, 149). These educational units were selected on the basis of information gathered from a 1958 questionnaire survey on the teaching of disaster nursing. Those selected met three criteria: (1) their programs were accredited; (2) they had indicated that they were providing instruction in disaster nursing; and (3) they had at least one faculty member who had had a course or experience in disaster nursing.

The review draft served as a basis for preparing the experimental form of the test. To obtain item analysis data and initial norms for the test, the experimental form, consisting of 190 items, was administered in the summer of 1960 to 3,000 senior students nearing graduation from

Figure 4

Means of Norms Groups on the Disaster Nursing Achievement Test and Reliability of the Test

Test	Number of items	3,264 senior students			2,992 senior students in accredited diploma programs			272 senior students in accredited baccalaureate degree programs		
		Mean	S.D.	Reliability coefficient	Mean	S.D.	Reliability coefficient	Mean	S.D.	Reliability coefficient
Disaster nursing	148	78.9	12.8	0.78	78.3	12.8	0.78	85.2	12.0	0.76
A. General nursing applied to disasters	90	49.2	8.1	0.67	48.9	8.1	0.67	52.5	7.6	0.63
B. Disaster nursing and disasters	58	29.6	5.9	0.60	29.4	5.9	0.59	32.7	5.7	0.57

accredited basic baccalaureate, diploma, and associate degree programs that met the criteria established for review of the draft.

The final form of the test, consisting of 148 items, was constructed on the basis of the item analysis data obtained from the administration of the experimental form.

1. Types of Questions

The 148 test questions fall into the following four major subject areas:

(1) Nursing in any type of disaster (11 questions).

(2) Natural disaster (33 questions covering three different situations).

(3) Enemy-caused disaster (37 questions).

(4) Enemy-caused thermonuclear disaster (67 questions on a specifically described situation).

The following questions are representative of those included in the test:

(1) If a number of families with small children are together in a shelter, which one of these factors is likely to exert the greatest influence on the reaction of a preschool child to a disaster?

a. The opportunity for play activities.

b. The response of other children in the same age group.

c. The presence of injuries among the victims.

d. The behavior of the child's parents.

(2) Unopened glass containers of I.V. fluids have been contaminated by radioactive fallout. Which way of treating them is best?

a. By emptying the flasks, boiling the contents, and then considering the fluids usable.

b. By boiling the flasks and then considering them safe.

c. By emptying the flasks into prepared sterile containers.

d. By washing off the flasks and then considering them safe for use.

(3) In applying the principle of "the greatest good for the greatest number," which one of these patients in the 200-bed disaster hospital would have the *lowest* priority for care?

a. A patient who is recovering from anesthesia and is vomiting.

b. A patient with postoperative urinary retention.

c. A patient with a cast on the lower leg which is impairing circulation.

d. A patient with third degree burns of 30 percent of the body surface, who has anuria.

2. Scoring

In addition to a total score, two subscores are provided, one on general nursing knowledge applicable to disaster situations (90 questions), and another on facts and principles peculiar to disasters and disaster nursing (58 questions).

The scores are computed on the basis of two norms groups, one consisting of senior students in accredited diploma programs, the other of senior students in accredited baccalaureate degree programs. The size and mean scores of these norms groups and the coefficient of reliability as measured by the Kuder-Richardson Formula No. 20 are shown in figure 4.

3. Use and Availability

This test was designed for use in the latter part of the senior year in the nursing program. Therefore it is suitable for use in testing graduate nurses, however, there are no norms available for this group.

This test is made available to schools and to nursing services from the NLN Evaluation Unit.

B. STUDY OF STUDENTS WITH AND WITHOUT DISASTER NURSING INSTRUCTION

A study was undertaken to compare students in educational programs that offer formal instruction in disaster nursing with students in programs that do not offer formal instruction with respect to their performance on the NLN Achievement Test in Disaster Nursing. The specific purposes of the study were to determine:

(1) The degree to which students who have not had formal preparation in disaster nursing can apply general nursing knowledge in disaster situations.
(2) The degree to which students without formal preparation in disaster nursing have acquired knowledge of facts and principles peculiar to disaster nursing.
(3) The correlation between the achievement of those who have had disaster nursing instruction and the achievement of those who have not received formal disaster nursing instruction.

1. Selection of Students

Information gained from the 1958 questionnaire survey was utilized in the selection of programs whose students would be suitable for the "uninstructed" group. Programs were considered only if:

(1) They were accredited.
(2) They had reported that they were not teaching disaster nursing.

(3) They had reported that no faculty member had had disaster nursing experience or had attended a course, conference, or institute in disaster nursing or related subjects of mass casualty care.

The number of schools meeting these criteria as of 1958 was very small—21. In 1961, each of these schools was asked if:

(1) It was offering disaster nursing instruction.
(2) A faculty member had had disaster experience or attended a course or institute.
(3) It was willing to participate in the study.

Only 15 schools met these criteria in 1961. Since only two of these offered a baccalaureate basic degree program, and since the data collected from only two programs would not be reliable, the students from the 13 diploma schools were chosen for the testing. These "uninstructed" students were designated as group I.

The group II, or "instructed" students, were from 13 accredited diploma schools where they had received disaster nursing instruction in which at least one faculty member had had preparation by attendance at courses. The schools were paired as to type of control, size, and location.

The test was administered to the students in these 26 schools in the early summer of 1961. Because the number of students being tested

Figure 5

Performance of Students on General Nursing Items

Pair No.	Group I (uninstructed)		Group II (instructed)		df	"t" values
	Mean	N	Mean	N		
1	45	41	54	26	65	*4.09
2	50	47	52	32	77	*2.11
3	53	7	62	9	14	1.77
4	48	22	51	20	40	1.15
5	48	23	51	15	36	1.66
6	48	26	53	40	64	1.85
7	51	27	50	18	43	.50
8	47	20	51	40	58	*2.33
9	52	16	55	10	24	1.23
10	50	26	51	26	50	1.08
11	46	17	47	15	30	.37
12	49	13	57	13	24	1.18
13	52	28	50	29	55	1.76

*Significant at 0.5 level.

was small and a significance test was indicated, a "t" ratio test was done on all the pairs of schools. The testing involved three scores, one for general nursing knowledge that could be transferred to and applied in disaster situations (derived from 60 percent of the questions), another for civil defense and disaster nursing knowledge (derived from 40 percent of the questions), and a total score representing the sum of the two subscores.

2. General Nursing Scores

The findings with respect to the scores on the general nursing items are shown in figure 5. In 10 of the pairs of schools, there was no significant difference between the scores for uninstructed students and those for instructed students. Apparently students in both groups were readily able to transfer knowledge of the practice of nursing in the everyday setting to that demanded in disaster situations. For the other three pairs the difference was significant, since in fewer than 5 out of 100 instances would these differences have been produced by chance alone.

Figure 6

Performance of Students on Disaster Nursing Items

Pair No.	Group I (uninstructed)		Group II (instructed)		df	"t" values
	Mean	N	Mean	N		
1	25	41	32	26	65	*5.51
2	29	47	33	32	77	*4.08
3	34	7	38	9	14	1.39
4	29	22	34	20	40	*2.74
5	29	23	31	15	36	1.32
6	27	26	31	40	64	1.85
7	27	27	31	18	43	*3.07
8	27	20	34	40	58	*3.41
9	28	16	36	10	24	*6.42
10	29	26	31	26	50	1.98
11	27	17	28	15	30	.84
12	27	13	37	13	24	*2.27
13	30	28	30	29	55	0

*Significant at .05 level.

3. Disaster Nursing Scores

The findings with respect to the scores on the disaster nursing items are shown in figure 6. The difference in the means for one paired group was zero. In five other pairs, the difference in scores was not significant. In seven of the paired groups, the difference was significant, since it could have occurred by chance alone in less than 5 out of 100 instances.

4. Total Scores

In eight paired groups no significant difference was found between the means of the total scores made by those who had received disaster nursing instruction and the means of the scores made by those who had not received this instruction (fig. 7). Of course, the fact that the scores of the two groups were fairly comparable with respect to general nursing knowledge had a bearing on these findings.

Figure 7

Performance of Students on Total NLN Achievement Test in Disaster Nursing

Pair No.	Group I (uninstructed)		Group II (instructed)		df	"t" values
	Mean	N	Mean	N		
1	70	41	85	26	65	*5. 43
2	78	47	85	32	77	*2. 89
3	88	7	100	9	14	1. 90
4	80	22	82	20	40	. 64
5	78	23	82	15	36	1. 30
6	75	26	84	40	64	*3. 57
7	78	27	81	18	43	1. 03
8	74	20	85	40	58	*2. 82
9	80	16	91	10	24	*3. 10
10	79	26	83	26	50	1. 68
11	73	17	75	15	30	. 58
12	75	13	94	13	24	1. 77
13	83	28	80	29	55	1. 11

*Significant at .05 level.

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I—Health Manpower.

J—Public Water Supply.

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*Formerly called Civil Defense Emergency Hospitals.

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